

Amendment A
Application No. 10/605,875
Amendment Dated: April 25, 2005
Reply to Office Action of January 25, 2005
Attorney Docket No.: 718935.43

REMARKS

It is noted with appreciation the thoroughness with which the Examiner has detailed the various rejections of the claims. The Claims stand variously rejected under 35 U.S.C. Section 102 over Iwata et al., Hansen et al., and Murakami et al. Although the rejections on the references are somewhat different, with regard to this response, they may be considered similar in their scope of teaching except as noted below. Claims 9, 25, 28, 36 and 38 were objected to and indicated as allowable if rewritten in independent form. The indication of allowability is deeply appreciated. In view of the amendments, these Claims have not been rewritten since the rejections of the independent claims have been overcome.

The three (3) cited references all utilize some form of motor and screw drive to move a valve element relative to a valve seat. However, there are important differences between the cited References and the structure as defined in the claims of the instant application.

Iwata et al. utilizes a stepper motor and a screw drive to move a valve element into and out of a sealing engagement with the valve seat. The flow of the fluid is through the valve seat forming member and can apply a substantial force to the valve element that can affect the force applied by the return spring. It is noted that this valve device is directed to an air flow control valve and therefore dynamic pressure from fluid flow is significantly different than that for a valve used in controlling flow of a liquid. Those claims directed to a coolant control valve, Claims 34 and 40 cannot be rejected on the basis of the teaching of an air flow control valve. There is little, if any, disclosure in Iwata, et al. about the function of the spring 36 but it is clear

Amendment A
Application No. 10/605,875
Amendment Dated: April 25, 2005
Reply to Office Action of January 25, 2005
Attorney Docket No.: 718935.43

from the disclosure, that it does not serve the same function as the biasing mechanism, for example, as set forth in cancelled Claim 3, that is now Claim 1. The biasing mechanism of Claim 1 will move the valve to an open position should power be lost to the stepping motor, intentionally or unintentionally. In fact, the position of the spring 36 in Iwata et al. would be just the opposite, and if it were a return spring or bias spring, it would bias the valve member to a closed position and not an open position. Additionally, Iwata et al. does not have a flow path through the second member, i.e., the valve element 26 as now defined in all the claims of the instant application. As well, there is no disclosure of the flow path for directing flow in a direction generally parallel to the direction of the linear movement of the second member as also now generally defined in all the claims of the instant application. Therefore, the rejection under 35 U.S.C. Section 102 of the claims under Iwata, et al. cannot be supported since it does not disclose each and every element of the claims.

Murakami, et al. is generally similar to the teaching of Iwata, et al. in that it uses a valve element 21 that seats against the valve seat 28. Again, there is no flow path through a second member or plunger as set forth in the claims nor is this non-existent flow path generally parallel to the linear movement of the plunger or second member. Thus, each and every element of the claims is not taught by Murakami, et al. and therefore it cannot support the 35 U.S.C. Section 102 rejection of the claims.

Hansen, et al. was cited for the teaching, inter alia, a stepper motor. A careful review of the Patent indicates that the motor for the valve drive is a Hall effect motor which does not

Amendment A
Application No. 10/605,875
Amendment Dated: April 25, 2005
Reply to Office Action of January 25, 2005
Attorney Docket No.: 718935.43

operate like a stepper motor. A stepper motor, once it achieves its rotational position, is held in position by maintaining current to the motor. A Hall effect motor does not work in this way. As now set forth in the Claims (except Claims 31, 33 and 34), for example, in Claim 1, a biasing mechanism is provided that is in contact with the second member (or plunger and return spring, claim 23) and is operable to move the second member to the second or open position in the event the stepper motor is not powered. No such structure is even suggested by any of the References of record including Hansen et al. Additionally, Hansen et al. does not have the defined flow path that moves fluid through the second member (or plunger in some claims), in a direction generally parallel to the direction of the linear movement of the second member (or plunger in some claims). As seen in Fig. 2, fluid flow through the flow path in the valve element 230 first comes in at a right angle then it traverses part of the flow path axially and then exits after making another right angle turn. This provides force on the valve element which has to be counteracted by the motor. In the instant invention, by the fluid flowing through the second member (or plunger), these forces can be reduced so that the biasing mechanism can move the second member (or plunger) to an open position if the stepper motor loses power. There is no suggestion of such a structure in Hansen et al., or for that matter, in any of the cited references of record. In fact, it does not appear that any of the cited references has the structure that could remotely achieve such a result.

The structures of Hansen et al., Murakami, et al., and Iwata et al., except for Fig. 2 of Hansen, et al. all disclose basically the same kind of valve system, i.e., a diaphragm that seats

Amendment A
Application No. 10/605,875
Amendment Dated: April 25, 2005
Reply to Office Action of January 25, 2005
Attorney Docket No.: 718935.43

against the valve seat and because of a pressure differential across the diaphragm, additional force is required to open and close the valve.

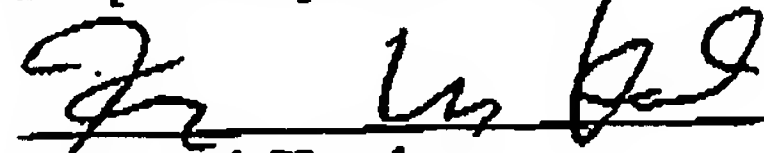
It can be seen, that the present invention, as now defined in all of the Claims, provides advantages over the structures taught by Hansen et al., Iwata et al., and Murakami et al. Because all of the rejections were under 35 U.S.C. Section 102, and because each and every element of the claims cannot be found in any of the individual references, the rejections must be reconsidered and withdrawn.

It is submitted that the claims are now in a condition for allowance and formal allowance of said claims is respectfully solicited.

If any issue regarding the allowability of any of the pending claims in the present application could be readily resolved, or if other action could be taken to further advance this application such as an Examiner's amendment, or if the Examiner should have any questions regarding the present amendment, it is respectfully requested that the Examiner please telephone Applicant's undersigned attorney in this regard.

Date: April 25, 2005

Respectfully submitted,



Kevin M. Kercher

Reg. No. 33,408

Blackwell Sanders Peper Martin LLP

720 Olive Street, 24th Floor

St. Louis, Missouri 63101

(314) 345-6000

(314) 345-6060 (Fax)

ATTORNEYS FOR APPLICANT